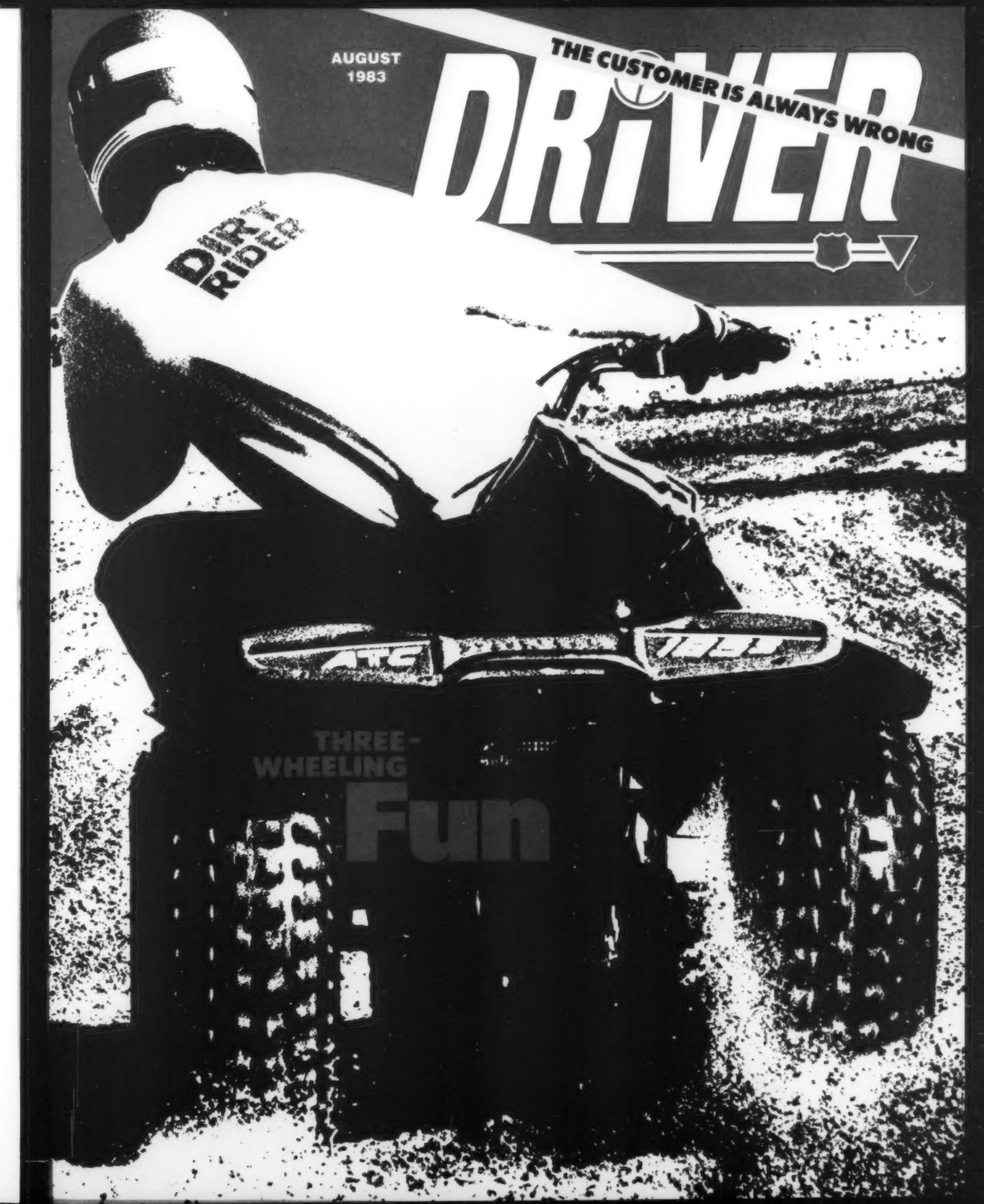
AUGUST
1983
THE CUSTOMER IS ALWAYS WRONG
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DRiVER

by JERI ROOD

The California Highway Patrol's "X Watch" does a brisk business in removing drunk drivers from the roads.

THE CUSTOMER IS ALWAYS WRONG

It turned out to be a slow night for arrests, and that was fine with me. I had looked forward to an interesting night learning how the police find and arrest drunk drivers, but by the time it was over I was tired, angry and more than a little disgusted with those who drive under the influence.

It was a Friday night in June and my shirt was sticking to my back as I got out of the car at the local California Highway Patrol headquarters. Despite this, I had brought a jacket, knowing the temperature would drop many degrees before the night was over in this semi-desert area.

DRIVER photographer Bob King and I were to ride in a patrol car on the CHP's "X Watch," a special night shift set up to focus on picking up drunk drivers. The X Watch overlaps the end of the evening shift, and the beginning of the night shift, so it was 7:30 when we sat down in the briefing room to talk with the CHP officers.

Far from being like the shift briefings on "Hill Street Blues," it was a quiet meeting with only six officers, including the sergeant, in clean pressed uniforms. We explained that we wanted to see what they looked for in stopping suspected drunk drivers and the procedures they go through to arrest them.

They told us the San Bernardino area office of the CHP has had this special shift since the beginning of the year, and it has proved very successful. Each unit makes six to ten stops each night and makes at least two drunk driving arrests. They refer to these persons as "customers."

The processing of a "customer" (sometimes called a "deuce," from DUI or driving under the influence) is time-consuming. It takes at least an hour, with stopping and checking the suspected drunk driver, arresting and booking at the jail, and administering the alcohol test, either through breath or urine analysis. Blood testing has to be done by medical personnel. Besides these, there is the report writing and filling out forms.

After Sgt. Jim Campise gave his short briefing, including a list of fugitives to watch for, we were assigned to a patrol car.

"You both want to ride in the same car, I suppose," Sgt. Campise said. I told him yes, if it was possible.

"Oh, that's no problem," another officer said. "It's just that you'll have to sit close to a drunk. *Real* close."

They explained that when they transport a drunk one officer sits in the back seat with the drunk, so one of us would sit in the right front seat and the other would be in the back. I didn't like the idea, but there was no way around it.

Cheap bars: Bob and I were assigned to ride with Officers Gregg York and Steve Batchelor in "1X," the night's designa-

continued

THE TRAFFIC SAFETY MAGAZINE FOR THE MILITARY DRIVER

DRIVER

DEPARTMENT OF THE AIR FORCE
HQ AIR FORCE INSPECTION
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Norton Air Force Base, California
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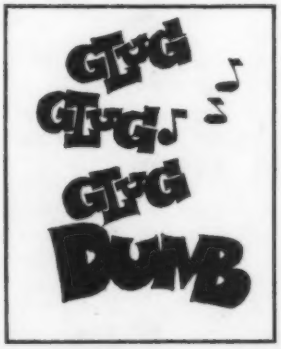

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Dr. FRANCIS S. McGLADE
Director of Safety
United States Army

COMO JERRY C. BREAST
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VIRGINIA HENDRIX
Editor

TSgt RON LATHROP
Technical Editor

JERI ROOD
Feature Editor

CINDY LIGHTHILL
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DON KELLEHER
Art Director

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Staff Artist

ROBERT KING
Staff Photographer

THE EDITOR SPEAKS

DOUBLE CLUTCH

AUTOMATIC RESTRAINTS — One More time

It all started in 1977, when the federal government said automatic restraints were to be standard in all new cars starting with 1982 models. That rule was postponed until 1983 models. Then in late 1982, NHTSA rescinded the standard, saying that auto makers were going to meet it by installing detachable automatic belts, which would not increase belt use a bit since most drivers would surely detach them.

The insurance industry, among others, didn't like that, so they challenged the recission in federal court. A U.S. Court of Appeals told the agency to reinstate the automatic restraint standard, starting with 1984 models. NHTSA appealed the order to the Supreme Court, and a few weeks ago the high court heard the case. In a unanimous decision, the justices said the standard could not be rescinded by NHTSA, partly because the agency gave no consideration to changing the standard to require air bags if it believed motorists would defeat the automatic feature of the new belts.

So, once again, there are automatic restraints in our future. Of course there is no time now to provide them in all 1984 models. Although a lot of money has been spent since 1977 designing and testing both belts and bags, the programs have been in low gear for a couple of years. Several companies which intended to manufacture air bags have dropped out.

Probably the standard will be temporarily suspended to allow auto makers time to get ready. But one thing is certain. We are about to begin a national test of automatic belts and air bags.

the customer is always wrong

continued

California Highway Patrol Officers Gregg York, Ron Dahlbeck and Steve Batchelor listen to a pre-shift briefing by Sgt. Jim Campise (foreground).

tion for a Chevrolet Impala cruiser.

They explained some of the procedures to us. The area this station covers is 450 square miles, and the X Watch officers can go wherever they want in that area to catch drunk drivers. Batchelor and York decided to cover the east San Bernardino area, a region of cheap bars and, perhaps not coincidentally, Norton Air Force Base. (The CHP patrols not only the highway but also the city streets.)

"You have to develop an extreme tolerance," Batchelor said of the customers. "They never can understand why they've been stopped."

York told of a drunk woman they stopped once, whom he described as "six feet two, with a tattoo."

"She was sure she hadn't had enough to be drunk, and she *certainly* hadn't had enough to be a .15," he said.

Outside, York and Batchelor checked out the patrol car and its equipment, cleaned the windshield, and we left headquarters.

On the way to the area they wanted to patrol, sometime after eight p.m. they spotted a pickup truck that was weaving a little, not enough so that I paid much attention to it. They pulled it over. Batchelor, who was driving, approached the driver's side, while York went to the opposite door, flashlight ready, to look for weapons. Across the street, a house party moved outdoors and the drinkers watched from the sidewalk and heckled the CHPs and the driver.

The officers asked the driver, a middle-aged, bearded man in a cowboy hat, to get out. Batchelor checked his eyes with a flashlight. He was looking for dilation of the pupils and a phenomenon called "nystagmus." This, they had explained earlier, is an involuntary eye movement due to alcohol or drugs. The officer has the "customer" follow a moving finger to check for nystagmus.

Then they had the cowboy stand on one foot, walk heel-to-toe and assume the "modified position of attention" to check his balance. The latter is a position with the feet together, arms at the sides and the face pointed to the sky with the eyes closed. It is a simple test, but difficult to do if you're drunk.

Then they had him do a finger count for small muscle coordination — touching each finger with the thumb, index to small finger and back again, 1-2-3-4, 4-3-2-1.

The cowboy passed the tests, although the officers knew he'd had a little to drink. They predicted they would see him again sometime.

Single car violations: Back in the car, they radioed in a report on a malfunctioning traffic light and we continued on to east San Bernardino.

"We tend to follow people coming out of bars," said Batchelor, adding that it is often a sure bet.

"We look for a violation that is not associated with another vehicle," York said, "like right of way, speeding or driving extremely slow, driving with the high beams on and failing to dim them, making a wide turn, rolling through a stop sign, or driving on the wrong side of the road."

continued

continued

Batchelor added, "The point-ones to point-ones-fives (.10 to .15 BAC or blood alcohol content) are the speeders. Alcohol is a depressant and it depresses the inhibition against speeding. The higher BACs are overcautious. They know they're in bad shape and they're just trying to ease on home. They might try to drive with their hand on the bottom of the steering wheel and their arm in their lap, just to steady the steering."

Officer Gregg York fills out a citation for one of the speeders the patrol car stopped.

Officer Steve Batchelor has his "customer," a suspected drunk driver, stand on one foot to test his balance.

We drove around in our chosen area for a long time without finding any drunks. I didn't know whether to be glad the streets might be safe or to think we'd jinxed the X Watch by being there.

"It's early yet," they told me. They obviously had to be patient at times, and they also had to be constantly alert.

They said they sometimes observe the driver directly, if he's stopped. "We pull up beside the driver and just look at him. If he's drunk, he might have a very stuporous look."

Speaking of the driving traits that indicate drunkenness, Batchelor said, "It takes practice to see. We tell the 'customers' we have 25 years experience between us. They tell us we don't *know*."

York added, "Anybody can pick out a .20 drink. It takes expertise to find the .10."

Soon we found Officers Jeff Morris and Ed Giroux of the 2X unit with a couple of small import trucks stopped by the curb, and a few teenagers standing on the sidewalk.

Morris walked to our car. Referring to a study we'd mentioned to them (see accompanying story) he asked me "What are the odds if they're on the wrong side of the street?"

Seeing that the other officers were in control of the situation, Batchelor moved on. York shook his head. "First weekend of the summer," he said.

Batchelor continued our "lesson." "Pickup trucks are good to follow. Lots of construction workers drive them. They stop by the bar, and sooner or later remember they have a home to go to."

They spotted a truck that weaved a little. "Do you like it?" York asked. Batchelor raced to catch up and we followed from a distance for a while until the truck pulled into a parking lot.

"No, I don't like it," Batchelor answered. If he had "liked" it, they would have stopped the truck.

"One weave in a mile doesn't mean anything," he explained to us. "It's hard to convince 12 people on a jury that a person weaving is DUI. It's easier if we catch him going 100 and he can't find his butt with both hands. We look for more violations than just one."

Cut a rug: We continued west for a distance and spotted some young people driving the other way. Doing a quick U-turn, Batchelor caught up to them and decided they were okay.

"Now that school's out, we deal with a lot of kids driving wild," York said. "Friday is 'cut-a-rug' night.

Another quick U-turn and we paralleled a young driver in a VW with one taillight out, and various other vehicle violations.

The driver looked out his window at York and smiled, knowing the reason for their interest. "I'm getting it all fixed," he called out.

York said "Okay," and we moved on. We went up a main thoroughfare and caught the freeway.

Batchelor explained that they have a different procedure on the freeway for handling the "customer's" car. On city streets, they lock the car and leave it. On the freeway, they have to call a tow truck to haul the car away, if there is nobody else in the car in shape to drive it.

We traveled five miles or more and through an interchange to another freeway without spotting a likely drunk. It was nearly 10 p.m. by this time. We exited the freeway and reentered, going back to town.

They spotted a girl in a small coupe going as fast as 80 mph and they pulled her over. The freeway stop was trickier, because they had to watch not only the stopped driver but also the fast oncoming traffic. The girl explained she was tired and was driving fast to get home safely. She was rewarded with a speeding citation to keep her awake.

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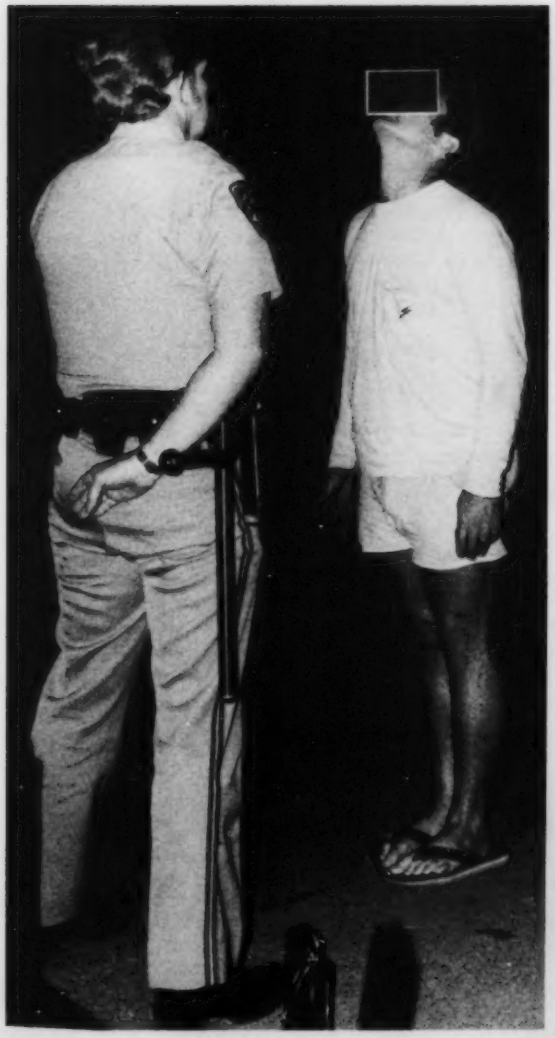


(left)
This stance, called the "modified position of attention," is very difficult to maintain if you are under the influence.

(above)
Officer Steve Batchelor handcuffs the driver, who has failed the sobriety tests, for transportation to jail.

(right)
Shining a light into the "customer's" eyes, the officer checks the dilation of his pupils.

continued

To check for a phenomenon called nystagmus, involuntary eye movements due to alcohol or drugs, the officer has the subject follow a moving finger with his eyes.

We got off the freeway again to change drivers. York did more freeway driving and eventually brought us full circle to the exact street where we'd found the cowboy. It was 10:37, about two hours later, and we found another car weaving a little. The officer discovered no alcohol odor or any other symptom. The man cited his poor health, and the officers judged him to be telling the truth.

Soon after that we found another speeder going 50 in a 40 mph zone. It was a long-haired young man in a speed-shop-modified pony car. He passed the balance and eye tests, although he'd had a little to drink. He received a ticket for the speeding and was allowed to go on.

We got back in the cruiser and continued through east San Bernardino and the area of the cheap bars. East on Baseline, south on Victoria, east on Third by the base. . . . I quickly lost track of the lefts and rights and the U-turns.

York, at the wheel, said, "You have to be aggressive. You do lots of U-turns and check out lots of cars. The chief traits are aggressiveness and 'nosiness,' you might say."

Business: It was 11:07 and we had been patrolling for over three hours. My 'nosiness,' and Bob's as well, had waned. York and Batchelor, however, had spotted a likely "customer." We were once again near the base and a sedan ahead turned right from a middle lane. We followed and saw the driver make a left turn too close to an oncoming car. The second car had to make an evasive action to miss him.

The officers shined their spotlight at him and he pulled over and stopped. As they got out to approach his car, he emerged and walked toward them. Yep, I thought. Business at last.

The "customer" admitted having "a couple of beers," but attributed his unsteadiness to injuries in Vietnam. York and Batchelor didn't even smile. He was a civilian somewhere around 30, dressed in shorts, sandals and a long-sleeved T-shirt. His jaw hung a little slack and he blinked very slowly.

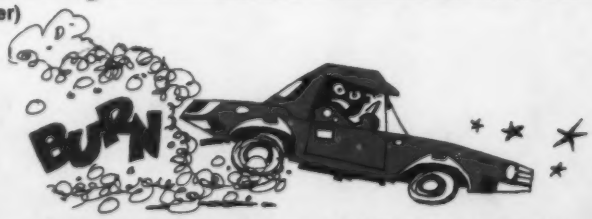
Batchelor took over the testing. The "customer" failed the eye nystagmus test. When he assumed the modified position of attention he immediately wavered

Know Your Enemy

(Recognizing the drunk driver)

"What's the matter with that guy?!? Is he drunk?"

Yeah, he might be. The only way you could know for sure is to have him walk a straight line or take a breath test. These are the methods the police use, but since they have to spot drunk drivers and get them off the road, they have certain visual clues that will tell them when it's likely a driver has had a few too many. These clues could be useful to you.



Anacapa Sciences, Inc., did a study for the Department of Transportation on spotting drinking drivers and developed a guide with 20 clues on detecting those drivers at night. Ten police departments across the U.S. participated in the study. The police reported the guide would be most useful for training new personnel, so it should be good for making ordinary citizens aware of the chances a driver is under the influence.

We have listed the clues here, along with the percentage probability that each clue denotes drunkenness.

The best thing you can do to protect yourself from the drunk driver is to be aware of the danger signs and stay away from a car whose driver displays any of them. If you suspect that a driver may be drunk, you should report it to the authorities for their action. Do not try to handle a drunk driver yourself.

Officers check small muscle coordination and concentration by having the suspected drunk driver write out the alphabet, both capitals and small letters.

and fell forward. Walking heel-to-toe, he placed his feet very carefully but still side-stepped to keep from falling.

Batchelor flipped a pad of paper onto the hood of the patrol car and told him to write his alphabet, which he did with exaggerated care: ". . .Ff Gg Ii Hh Ii . . ."

He did the finger count quickly and well, but without having it explained to him first. He knows the procedures, I thought.

In fact, he knew precisely how much he could get away with. He was uncooperative to the maximum degree without going over the line into additional offenses. No obscenities and no belligerence, but he still bucked them at every opportunity. He argued about every question he was asked.

The officers checked his car for weapons and found a small plastic bag with something green in it.

Asked which kind of alcohol testing he wanted, the "customer" asked for urinalysis. He was handcuffed and put in the back seat of the cruiser with the seatbelt around him.

I didn't want to sit next to an unfriendly drunk, but I asked Bob, "What's your pleasure? Front or back?"

"Oh, I'll take the front. You're bigger than I am," he added with a chuckle.

York locked the "customer's" car, Batchelor squeezed in the back and we headed for the county jail. The "customer" complained about his treatment, the search of his car and the questions he was being asked. Batchelor quietly asked him questions to fill out the arrest forms, and the "customer" refused to answer or got sarcastic.

"I'm taking the fifth amendment, baby. I don't have to give you nothin' but my name, rank and serial number."

"I'm not your 'baby,' " Batchelor said.

Lice and stale beer: I had been afraid we'd find a belligerent drunk or a sick one, but this guy was bad enough. He was nearly as large as Batchelor, and I was squashed in the middle. He kept soliciting approval or support from Bob and me, and we ignored him. But worst, he kept talking, and the air in the closed car reeked of stale beer. Driving home

continued

DUI Detection Guide

Chances in 100 of nighttime driver with BAC equal or greater than .10

Turning with wide radius	65	Drifting	50
Straddling center or lane marker	65	Tires on center or lane marker	45
Appearing to be drunk	60	Braking erratically	45
Almost striking object or vehicle	60	Driving into opposing or crossing traffic	45
Weaving	60	Signalling inconsistent with driving actions	40
Driving on other than designated roadway	55	Slow response to traffic signals	40
Swerving	55	Stopping inappropriately (other than in lane)	35
Slow speed (more than 10 mph below limit)	50	Turning abruptly or illegally	35
Stopping (without cause) in traffic lane	50	Accelerating or decelerating rapidly	30
Following too closely	50	Headlights off	30

Special adjustment to the cue values
- 2 or more cues observed: add 10 to the larger value
- BAC equal to or greater than .05: add 15 to the value obtained for BAC equal to or greater than .10

Ambulance attendants strap the injured driver onto a stretcher as the handcuffed drunk driver waits to be taken to jail.

Police and paramedics work to remove a young woman from a wrecked car after an accident caused by a drunk driver.

A CHP officer gets some information from the victim of the DUI crash as he is put on the ambulance.

continued

at the end of the night, I could still smell his breath in my jacket.

I felt better as we got out at the jail. Even San Bernardino smog seemed okay. But then we had to go inside.

In the entry to the jail — controls kept the interior and exterior doors from being open at the same time — were a few sheriff's officers, CHP X-Watchers Morris and Giroux, and a few "customers" of various descriptions. An old, grizzled man squatted on the floor next to a couple of matted and frayed things that might have been coats. A sheriff's officer at a table sorted through some of the old man's possessions. He wore clear plastic gloves on his hands.

I inhaled and decided to breathe through my mouth. I thought of lice.

Inside the jail Batchelor and York still tried to get the forms filled out, completely without the help of our "customer."

Any prior arrests? "18,000; maybe more." You're allowed one call; anyone you want to call? "Yeah, the President of the United States." When they came to reading him his rights, he recited them by heart. Batchelor patiently read them to him and he asked for a lawyer to be present during any questioning.

York predicted he wouldn't get out of jail until he had answered all the questions of the arrest forms. The officer wrote "Extremely uncooperative" in big letters in a space on one of the forms.

The booking, taking of the urine samples and the *attempts* to fill out the forms took nearly an hour, and I was grateful to get outside. We got some coffee and went back to the patrol.

Shortly after 1 a.m. we stopped another speeder in a mini-truck. Then, in rapid succession we were summoned to take a drunk off the sheriff's hands, and before we could get there we were called to an accident scene only a couple of miles north of CHP headquarters.

When we arrived a very few minutes later, we found a smashed Honda and a wrecked Camaro on the brush-grown center divider. Two CHP units were already there, but York and Batchelor had been called in to take over the accident. Also there were a couple of motorists who had witnessed the accident and stopped to help, a truck and an ambulance.

Attendants had freed the driver of the Honda, who walked about holding compresses to his bleeding head. The occupants of the Camaro were unhurt, but an injured female passenger remained in the Honda.

Felony DUI: The witnesses said the Camaro had been driving on the right shoulder until traffic passed and then did a U-turn and proceeded south in the northbound fast lane, and was struck by the Honda.

The CHP officer suspected the Camaro driver was drunk and they administered the drunk tests to him. He failed and was cuffed and placed in the car. They said he would be charged with felony driving under the influence.

After that, the CHP officers' work was just to control the situation by keeping traffic moving, keeping the passengers from the Camaro out of the way and assisting the ambulance attendants and paramedics.

I stood in the wind, shivering despite the jacket. It was 2 a.m. First the young man from the Honda was strapped onto a stretcher and then the attendants very carefully got the young woman out and onto another stretcher. Her face was bloodied and she shivered as she lay, whether from shock or from the cold I didn't know. I wondered why the innocent people had been injured and the drinkers had not.

After the ambulances and the two trucks had left and the warning flares had burned out, we again squeezed into the patrol car and headed for the jail.

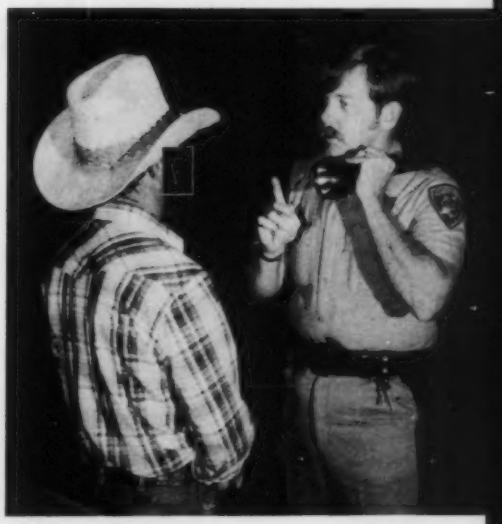
It was 2:30 a.m. by this time, and Batchelor and York anticipated perhaps an hour and a half of processing and paperwork, between taking the driver to the hospital for examination and alcohol testing, and then transporting him to the jail. Since the shift ended at four a.m., we knew we would do no more patrolling that night.

I wanted no part of that jail again, and I especially wanted no part of that particular drunk driver. He was quiet and didn't sass the officers like the one earlier that evening. But on the other hand, he had injured two innocent people who just happened to be there when he did something stupid.

The CHP officers dropped Bob and me off by our cars, we said goodnight and went home.

I found I was suspicious of many of the drivers I encountered on my way home. Too many of them were weaving or driving too slowly.

After what the CHP offices had shown me, I knew better than to think I was exaggerating the problem.



(right)
The officers put drunk driving suspects through a variety of balance, vision and coordination tests to check for the influence of alcohol. It is not so simple as just walking a straight line.

DANGEROUS ATTITUDES

Macho

Anti-authority

Five "thought patterns" you should avoid

Last month we compared the attitudes of drivers with those of airplane pilots in "Responsibility Vs. the 'Unlucky' Driver." This month we want to examine the ideas in more detail, to show how these attitudes can affect driving.

Embry Riddle Aeronautical University did a study called "Pilot Judgment Training and Evaluation" for the Federal Aviation Administration. The study described "Five Hazardous Thought Patterns" sometimes exhibited by pilots involved in accidents. Can they be applied to drivers, especially the younger and less experienced ones? Read on.

Anti-authority — This thought pattern is found in those who resent it when others have control or authority over them. They ignore rules and regulations in favor of doing it their own way. They can be summed up with the statement "Don't tell *me* what to do!"

Impulsivity — This is the thought pattern of acting on impulse, without first thinking through a situation to explore different possible actions and choosing the best one. Impulsive people do the first thing that they think of. "Do something — *now*!"

Invulnerability — This is what makes bullets bounce off Superman's chest. As a thought pattern, it makes people assume nothing bad will happen to them, that accidents will only happen to other people. "Nothing will happen to *me*!"

Macho — This thought pattern causes people to constantly try to prove themselves and impress others by doing dangerous things. It is the drive to gain the attention and approval of people, and it is the idea that caution is for "wimps." It is *not* exclusively a male attitude. "*I* can do it!"

External Control — This is the idea of people who think they can do little, if anything, to control situations. It is fatalistic attitude of "What's the use?" Good things are thought to be just "good luck," and troubles are chalked up to "bad luck" or the fault of another person. "It's out of my hands."

The following fictional situations illustrate these five "frames of mind." The stories are fairly ordinary occurrences, and they show how these attitudes can lead to trouble.

Number 1: Two airmen had been drinking beer in the barracks for a couple of hours and they decided to drive out into the country to a lake to go swimming. The one who was to drive was saying, "I can usually put away a sixer without even feeling it. I can drink a lot before it affects how I drive." His friend expressed a little doubt, but he said, "Aw, we're just going out to the lake. Nobody ever uses that road. Nothing can happen."

They traveled fast on the dirt road and slid their four-wheel-drive truck around some of the bends. They were having a good time and drank a few more beers. The passenger asked the driver to try putting the truck into a four-wheel drift around some of the curves. "I've never tried that," the driver responded, "but if you can do it, it can't be too hard. This is a four-wheel drive; we'll be okay."

They sped up through the next few turns and nearly overturned on one of them. The passenger got upset and said "Who taught you how to drive, your grandmother? You want to get us killed?"

"Look," said the driver. "I'm driving this thing and I can drive a lot better than you can. Relax and enjoy the ride."

They did a few more fast turns and the passenger calmed down, too drunk to care. On the last turn before the lake, the truck overturned and both airmen were injured.

In this situation, the driver's repeated bragging about his driving ability and his tolerance for alcohol are "macho" attitudes. The show-off driving and the accident are the almost inevitable results of the bad decision to drive to the lake after drinking.

Number 2: Tom and Randy were two friends out for a pleasure drive on a mountain road. Tom, at the wheel, had just bought a used car and was proud of the fact he was passing all the cars on the road. He bragged that he could handle a car on a mountain road better than anyone who lived around there.

"They take it too easy," he said. "They drive like my grandpa. You can go a lot faster than the signs say here. The highway people think 'curve — 30 mph,' and they don't take into account the capabilities of better drivers." Randy told Tom he was not so good as he thought he was. "Remember why you had to get this car in the first place — you flipped that last car you had and nearly broke your neck."

Tom got angry and said, "Hey, that wasn't my fault! How was I to know there'd been a rainstorm ahead of me and the highway was wet? You can't blame the weather on me."

He decided to prove to Randy that he could handle himself. "Watch me take this next turn at 45," he said.

Randy was anxious not to seem afraid of the fast driving and he said, "Okay."

Tom took each turn a little faster until they were going nearly 60 on curves posted for 40 or less. They rounded one curve and veered into the opposing lane because of their speed. An oncoming car had to squeeze to the right to avoid them.

Tom, shaken by the near miss, said, "Where did that idiot come from? There's always somebody in the way."

Soon afterward, one of his tires blew out. Randy checked it as they changed to the spare. He told Tom he thought it overheated because of the fast, hard driving.

Tom got annoyed. "No, it's obviously just a lousy tire. They always put surplus stuff on used cars. It's not my fault."

When Randy continued to express doubts and asked Tom to slow down, Tom replied with a laugh, "You just

Invulnerability **External control** **Impulsivity**

can't take the excitement. I'm the best driver you'll ever ride with. I can take anything this road can dish out."

He promised to drive slower on the way home, "just for you, Gramps."

This driver is more than just "macho." He thinks he is invulnerable, and that speed limits are set arbitrarily for those with less ability than himself. He also displays some "external control" thinking when he attributes his own driving errors to the weather, faulty tires or other drivers who are "in the way."

Number 3: The driver was in a hurry to pick up his girlfriend. He was driving in the rain across a low-lying area noted for flooding out in the rain.

He came to a barrier across the road that read "Road Flooded." He knew the alternate route would be open but it was several miles out of his way. He drove around the barrier and continued on the road.

About 200 yards along, he came to a spot where the water was washing across the road. He didn't think it looked very deep so he drove through it. As he emerged from the water he accelerated the car.

When he next touched the brakes he found out they had been dampened by the water and were not working at total efficiency. He slammed on the brakes and held the pedal to the floor. The road was sloping slightly uphill, so the car eventually slowed and the brakes eventually dried out.

He came to another low-lying area that was flooded worse than the last one. He thought, "Maybe I should turn around. No, I handled the last wash. I can do it easy."

He drove through it and this time the water splashed onto the engine and the car stalled.

He got out and raised the hood, angrily thinking, "Why does this garbage always happen to me? Rotten weather!"

This situation shows a lot of "impulsivity." The driver, in a hurry to get to a destination, makes a bad snap decision and persists in it to the point of making the same bad decision again. To top it off, his "external control" thinking comes out when he blames the weather for his car stalling.

Number 4: An airman leaving the base missed the end of the yellow light and went through the intersection on the red. He accelerated down the road and was soon traveling 50 mph in a 35 zone. When he reached the freeway onramp, he stepped on it a little more and by the time he was in the flow of traffic in the fast lane he was going 70 and still accelerating.

A patrolman stopped him before he had gone another mile. As he waited in his car for the patrolman to approach, he swore softly to himself and rehearsed what he would say. The patrolman gave him a ticket for speeding 20 miles over the limit.

"Hey, what's the idea?" the airman said. "I wasn't going that fast! Besides, most of the other cars were keeping up with me!"

Of course, this driver is displaying the "anti-authority" attitude. He speeds and runs stoplights, and then when he is stopped he argues with the police.

We hope these examples have started you thinking. Most everyone displays some of these attitudes at one time or another, to some degree. When one (or more) of these become a dominant personality trait, however, it can lead to problems and even accidents, as illustrated in these examples.

Try these "antidotes" to the dangerous attitudes:

— **Anti-authority:** "Use the rules; they are usually right."

— **Impulsivity:** "Not so fast. Think first."

— **Invulnerability:** "Why *not* me? I am human too."

— **Macho:** "Risks don't prove my abilities. They prove I am foolish."

— **External Control:** "I am not helpless. I *can* make a difference."

Now try one yourself and see if you can detect the dangerous attitude.

Number 5: A driver was out on the road alone at night, trying to make it to a distant town. He had limited leave time available and had to get there and back in only three days.

He left right after work, without any rest. A friend suggested a nap, but he scoffed at the idea. "I'll start taking naps when I get to be 65. I can get by without sleep and I'm a real good driver."

He drove for six hours before stopping. During that time he came close to dozing a few times. He considered stopping but decided to go until he found a restaurant.

When he finally stopped, it was only for gas and a quick cup of coffee. He drove on for a couple of hours before the fatigue set in again. This time he was worse off and actually dozed. He snapped awake each time, and once found himself halfway into the opposing lane of the highway.

Once again he thought about stopping but said to himself, "Nothing's going to happen that I can't handle."

After a couple more bouts of sleepiness, one in which he slid to the edge of the road and clipped a mileage marker with his right front fender, he saw a highway patrol car's flashing light in his mirror. He pulled over.

The officer told him a motorist had complained about his weaving on the road.

"Why don't they mind their own business?" he thought. "I wish I could find the jerk who turned me in."

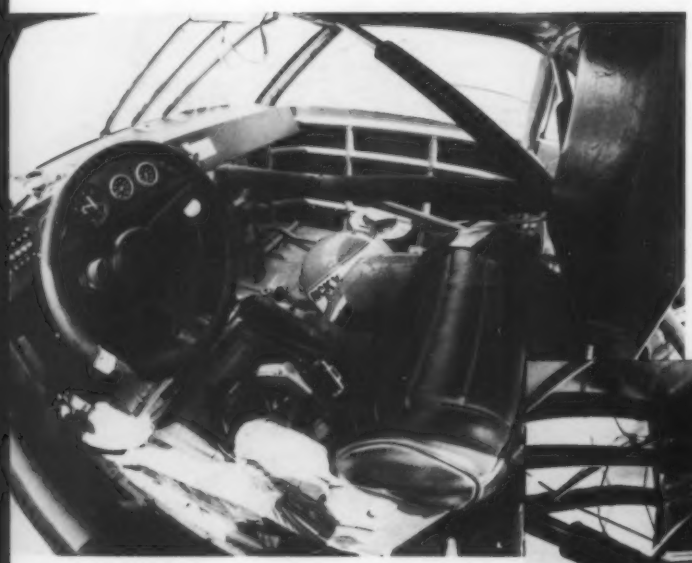
He was tested for sobriety and when he told the officer he was just tired the officer gave him a ticket for a right-of-way violation.

He thought, "What's this cop harassing *me* for? Why isn't he out stopping drunks or rapists or something?"

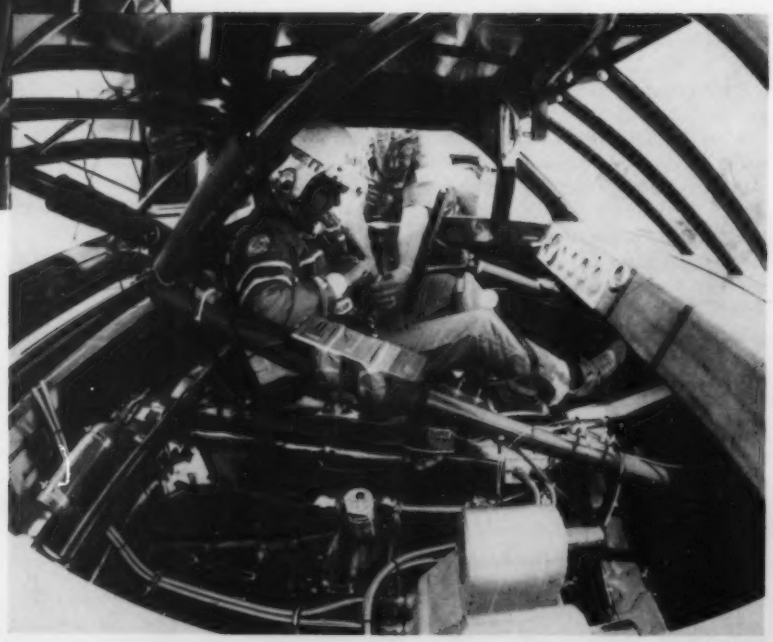
Which of the five dangerous attitudes do you think this one is?

when a STOCK CAR isn't a STOCK CAR

From a distance the vehicles used in National Association for Stock Car Auto Racing (NASCAR) Grand Nationals may look like something you can find on your dealer's showroom floor, but when you get closer . . .



. . . you'll find that under the stock appearing sheet metal is a pure racing machine with a rollcage strong enough to withstand a 200 mph crash.



And just as important as the strength of the rollcage is use of safety belts.

ALOHA oi ...yoi yoi

Are you one of those drivers who buckles up for long trips on highways but never for low-speed runs in your local area? The driver of this car fell asleep in a 25 mph zone on Hickam AFB! He wasn't belted in. When his head shattered the windshield, he ended up with a king-sized headache. Get in the habit of buckling up every time you drive.

BEETHOVEN'S FIFTH

1ST MOVEMENT: Allegro C

GIyG GIyG GIyG DU

DESIGNATED THE "BOTTLED-IN-BOND" BY THE MAESTRO HISSELF, THE MASTERPIECE IS BEST KNOWED AS "BEETHOVEN'S FIFTH". CERTAINLY THIS IS THE CASE AMONGST DRUNK DRIVERS, SEMI-DRUNK DRIVERS AND THE COUNTY MOUNTIES WHO HAVE TO CATCH THESE TURKEYS.

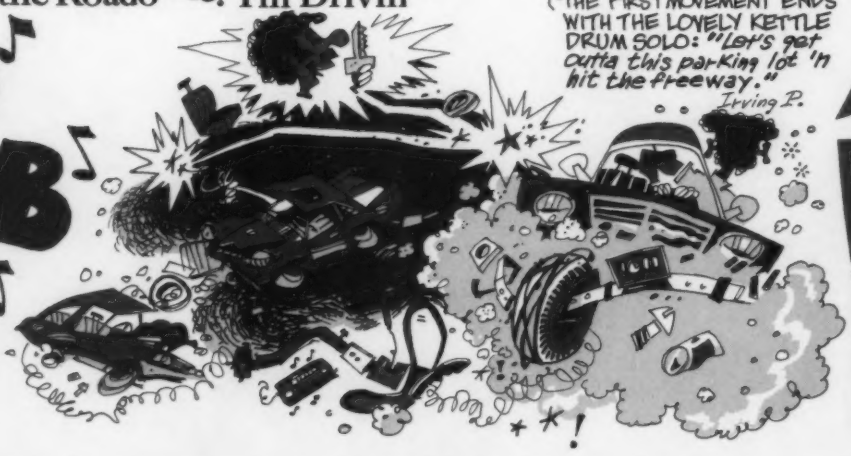
"THE BOTTLED-IN-BOND" SYMPHONY NO. 5 IN E FLAT MAJOR

THE SYMPHONY STARTS OUT LIKE *STAR WARS* WITH THE OPENING *Allegro Con Corkscrew* THAT CONTAINS MUSIC'S MOST FAMOUS FOUR NOTES. DURING WW II, IN FACT, THESE FOUR NIFTY NOTES, THIS "KNOCKING OF FATE ON THE DOOR" CAME TO REPRESENT THE "V" IN THE "V FOR VICTORY" EFFORT OF THE TRIUMPHANT GOOD GUYS. TODAY, HOWEVER, TO THE DRUNK DRIVER FRATERNITY AT LEAST, THAT OLD "V" STANDS FOR "VODKA". *Notes by Irving Paderewski, Music Editor*

Allegro Con "One for the Roado hic! I'm Drivin'"

DUMB DUMB DUMB GIyG

(THE FIRST MOVEMENT ENDS WITH THE LOVELY KETTLE DRUM SOLO: "Let's get outta this parking lot 'n hit the freeway." *Irving P.*



Fortissimo Flunko

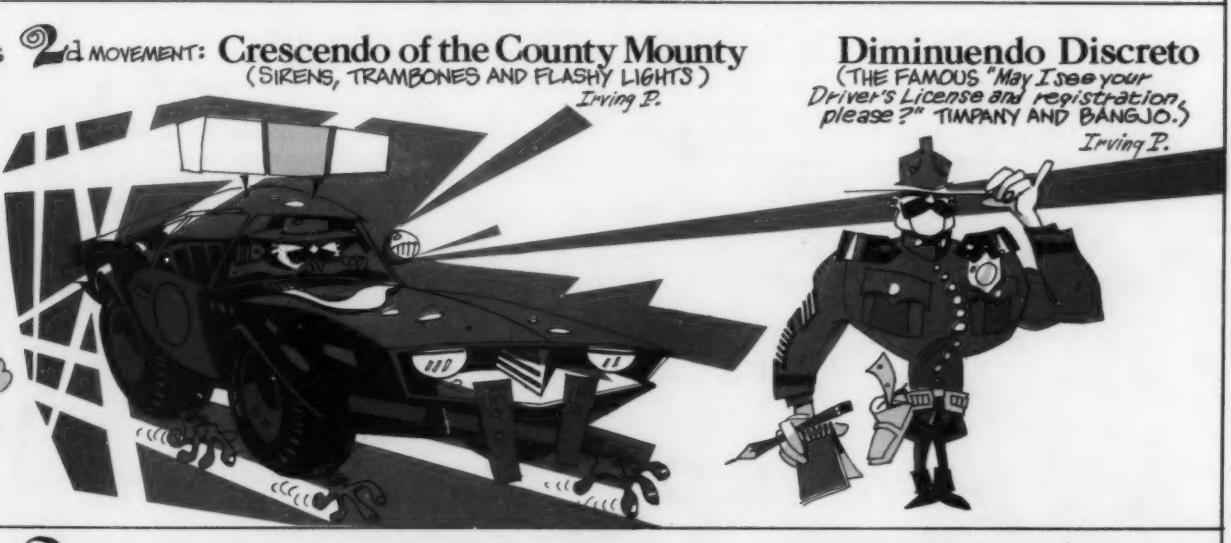
(THE HAUNTING: "You Flunked the sobriety test, Mac." SNARE DRUM.) *Irving P.*

Allegro Con Busted and Handcuffed

(CYMBALS) *Irving P.*

(THE MOVEMENT ENDS WITH A REPRISE OF THE *Crescendo of the County Mounty* ONLY THIS TIME NO SIRENS OR FLASHY LIGHTS. JUST TRAMBONES AND SOBBY VIOLINS.) *Irving P.*

ro Con Corkscrew
One More Time
GTYG
GTYG
GTYG
DUMB*
(IF THAT AIN'T "FATE KNOCKIN' ON THE DOOR" I DON'T KNOW WHAT IS.) Irving P.
* AS IN "STUPID" (Irving P.)


2d MOVEMENT: Crescendo of the County Mounty
(SIRENS, TRAMBONES AND FLASHY LIGHTS)
Irving P.
Diminuendo Discreto
(THE FAMOUS "May I see your Driver's License and registration, please?" TIMPANY AND BANGJO.)
Irving P.

3d MOVEMENT: Pianissimo Con Humilioso
(THE UNFORGETTABLE "Hangin' Judge throwin' the book at you." PIANO, CYMBALS AND LOTS OF SOBBY VIOLINS.)
Irving P.
Finale Con Fiscal
(BEETHOVEN'S FIFTH ENDS WITH THE PLAINTIVE: "Where am I gonna get the bread to pay for this mess?" SWIZZLE STICKS TAPPING OUT THE BIG "V" ON AN EMPTY VODKA BOTTLE.)
Irving P.
COURT COSTS $91
COURT SCHOOL OF UNDERSTANDING $150
CAR IMPOUND COSTS $31.50
LAWYER $65
ADDICTION $1200
BAIL $18.50
FINE $372.50
HIGHER INSURANCE TAB $400/$800

3-Wheeling FUN

Safe three-wheel all-terrain vehicle operation is a matter of common sense, intelligent riding and respect for the rights of others. The secret to enjoying any form of recreation is skill mixed with caution.

Before any trip on your all-terrain vehicle you should make sure that it is in safe operating condition. Your stem to stern pre-ride inspection should include oil level, all fasteners (especially axle nuts), brakes, throttle, all controls, switches, lights, ignition, chain, tires and fuel.

Also make sure all riders are in safe operating condition. In addition to wearing a good helmet, eye protection, trousers that cover legs and boots high enough to cover the ankles, they should be sober. The smallest amount of alcohol — including beer and wine — will impair rider judgment and slow reaction time.

Of course the real trick to safe riding is operator skill. Practice your skills in a safe area that is free of obstacles. The best practice areas are all one surface such as sand, dirt or snow. Paved areas are more difficult to maneuver on and are very hard on tires, so avoid them.

Because three-wheel all-terrain vehicles drive both rear wheels at the same speed, they turn and corner differently than any other machine. In order to change direction you must steer into the turn while at the same time shifting your weight to the outside footpeg and leaning your upper body to the inside of the turn.

See why practice is so important?

While skids are dangerous, they can be handled by shifting your weight to the front and steering into the skid. Whatever you do, don't brake or change the throttle position until you've regained control of the machine.

You should practice hill climbing on gentle slopes first. You'll need a running start in the right gear so that you won't have to downshift while climbing. To keep the front wheel from coming off the ground and tipping you over, shift your weight forward.

If you can't make the climb and space permits, turn around while you still have enough speed to do so.

Should the hill defeat you and you don't come to a complete stop, don't apply the rear brake. Get off and "muscle" the vehicle around until it is pointed downhill. Then get back on. If this can't be done, shift to neutral and slowly walk the vehicle down, staying on the uphill side of the cycle.

If at all possible don't ride across a slope — especially if it is slippery or difficult to navigate. Find a safer route. But if you have to ride across a hill's face, keep your weight on the uphill side of the vehicle for balance.

Stop and check for obstacles on any hill that you are planning on riding down. With cycle in low gear, slowly go down the hill with the throttle closed. Keep the machine pointed straight down the grade and avoid turning. If the soil is sandy, use the rear brake for additional braking action.

Always keep your feet on the footpegs. If you put them down you'll be run over by the rear wheels.

While these three-wheelers will ford shallow waters, you should avoid deep or swiftly moving streams. Also travel slowly to avoid hidden obstacles and to keep the plugs and air cleaner dry. As with any water crossing, apply the brakes repeatedly afterwards to dry them.

With just a little caution, common sense, intelligent riding and skill you can safely enjoy any all-terrain vehicle.

Three-wheelers can be fun and safe if the operator mixes skill with a little caution.

Any vehicle should be inspected before starting . . . and so should the operator. This woman would probably be safer if she wore longer sleeves and ankle high boots.

(left and above)
Cornering a three-wheeler requires turning the fork while shifting your weight to the outside footpeg and leaning your upper body to the inside of the turn.

Three-wheeler wheelies may be fun but they are very dangerous because of the loss of directional control. Of course you can tell by this rider's lack of proper safety gear that he's not as concerned about his own safety as he should be.

Practice, practice, practice. Until you develop all the proper three-wheel riding skills, practice in an obstacle free area but do wear *all* the proper safety gear, please.

It's better to check the fuel level before you start riding. Also make sure that the fuel petcock is on and the gas cap vent open.

Motorcycle Laws by State

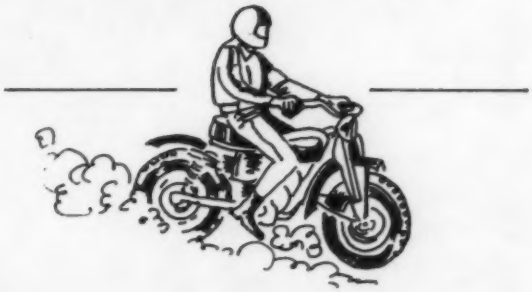
	Safety Helmet	Eye Protection	Daytime Use of Headlight	Motorcycle Operator's License	Passenger Seat	Radar Detectors	Passenger Footrests	Helmet Speakers	Mirror Left (L) Right (R)	Periodic Safety Inspection	Crash Bars
ALABAMA	X				X	0	X	0	X		
ALASKA	X-4	X-12		X	X	0	X	#	X(L,R)		
ARIZONA	X-4	X-11		X	X	0	X	0	X	X-15	
ARKANSAS	X	X	X	X	X	0	X	0	X	X	X
CALIFORNIA			X-9,24	X	X	0	X	#-23	X	X-17	
COLORADO		X		X	X	0	X	0	X		
CONNECTICUT		X-11	X-10	X	X	#	X	0	X	X-17	
DELAWARE	X-1,2,8	X		X	X	0	X	0	X	X	
FLORIDA	X	X	X		X	0	X	#	X		
GEORGIA	X	X-11	X	X	X	0	X	#	X(L)	X	
HAWAII	X-1,4	X-11		X	X	0	X	0	X	X	
IDAHO	X-4				X	0	X	0			
ILLINOIS		X	X	X	X	0	X	#-22	X		
INDIANA			X	X	X	0	X	0	X(L)		
IOWA			X	X	X	0	X	0	X	X-16	
KANSAS	X-4	X		X	X	0	X		X	X-17	
KENTUCKY	X	X		X	X	#	X	0	X		
LOUISIANA	X	X-11		X	X	0	X	0	X	X	
MAINE	X-20		X	X	X	0	X	0	X	X	
MARYLAND	X-1,4	X-11		X	X	0	X	0	X(L,R)	X-16	
MASSACHUSETTS	X	X-11		X	X	0	X	#	X	X	
MICHIGAN	X	X-3,11		X	X	0		0	X	X-17	
MINNESOTA	X-4	X	X	X	X	0	X	0	X	X-17	
MISSISSIPPI	X				X	0		0	X	X	
MISSOURI	X			X		0		0		X	
MONTANA	X-4		X	X	X	0	X	0	X		
NEBRASKA				X	X	0	X	0		X	
NEVADA	X	X-11		X	X	0	X	0	X(L,R)		
NEW HAMPSHIRE	X-4	X-11		X	X	0	X	0	X	X	
NEW JERSEY	X-1	X-11		X	X	0	X	0	X(L,R)	X	
NEW MEXICO	X-1,4	X-11		X	X	0	X	0	X	X-17	
NEW YORK	X-1	X	X	X	X	#	X	0	X	X	
NORTH CAROLINA	X		X-24		X	0	X	0	X	X	
NORTH DAKOTA	X-1,4			X	X	0	X	0	X	X-17	
OHIO	X-4,7	X		X	X	0	X	0	X	X-17	
OKLAHOMA	X-4	X-11			X	0	X		X(L,R)	X	
OREGON	X-4		X	X	X	0	X	0	X	X-17	
PENNSYLVANIA	X	X		X	X	0	X	#	X-13,14	X	
RHODE ISLAND	X-26	X		X	X	0	X	0	X	X	
SOUTH CAROLINA	X-19	X-19	X	X	X	0	X	0	X	X	
SOUTH DAKOTA	X-4	X-11		X	X	0	X	0	X		
TENNESSEE	X	X-11	X	X	X	0	X	0	X		X-6
TEXAS	X-1,4			X	X	0		#-21	X	X	
UTAH	X-4			X	X	0	X	0	X	X	
VERMONT	X-1	X-11		X	X	0	X	0	X	X	
VIRGINIA	X	X-11		X	X	#-25	X	#	X	X	
WASHINGTON		X-11	X	X	X	0	X	#	X(L)	X-17	
WEST VIRGINIA	X-1	X	X		X	0	X	0	X	X	
WISCONSIN	X-4,7	X-12	X-24	X	X	0	X	0	X	X-17	
WYOMING	X-4		0	X	X	0	X	0	X	X	
DISTRICT OF COLUMBIA	X	X-11	0	X	X	#	X	0	X	X	
PUERTO RICO	X	X		X	X	0	X	0	X	X	

LEGEND:

X - law currently in effect
0 - legal to own, possess, or use
- prohibited to use or possess
1 - reflectorization required
2 - must have in possession
3 - required at speeds over 35 mph
4 - under age 18 only
5 - under age 16 only
6 - crash bars required for machines over 750cc if operator is under age 18
7 - required for novice riders
8 - under age 19 only
9 - for vehicles manuf. during or after 1978
10 - for vehicles manuf. during or after Jan. 1, 1980
11 - unless vehicle is equipped with windscreen
12 - unless windscreen is 15 inches or higher
13 - for vehicles manuf. after April 1, 1977
14 - required by inspection regulations
15 - annual emissions, some areas
16 - upon title transfer
17 - random
18 - for vehicles manuf. during or after 1977
19 - under age 21 only
20 - required for motorcycle or sidecar passenger under age 15
21 - Sec. 1390: must be used "exclusively for safety or law enforcement purposes and approved by Dept. of Public Safety"
22 - Chapt. 95½; 12-610: restricts use of "headsets"
23 - single earphone permitted
24 - modulating headlight permitted
25 - may be confiscated where illegal
26 - for passengers only

March AFB, Calif., senior commanders listen as SMSgt Carl Spurgeon, a Motorcycle Safety Foundation chief instructor from the Air Force Inspection and Safety Center at Norton AFB, Calif., emphasizes a point during the classroom session.

first hand

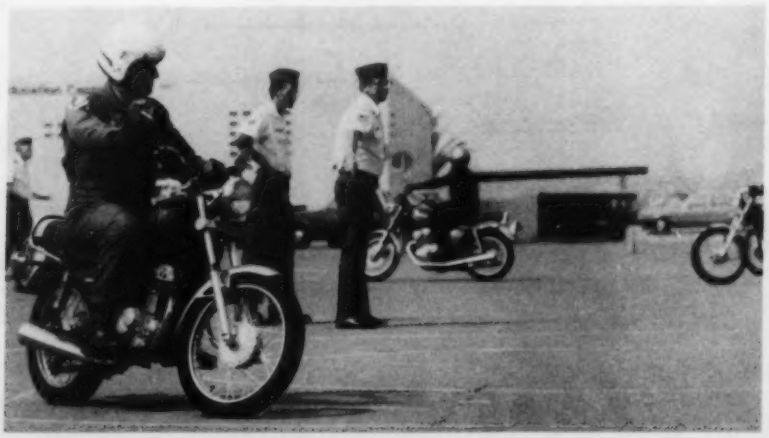


Often people who are required to take a special training program question whether commanders really care about anything other than filling squares. And should their boss "suggest" they attend a course on their own time they all but laugh the supervisor out of sight.

Such should not be the case at March AFB, Calif., where eight senior commanders recently experienced both the classroom and hands-on portions of the Motorcycle Riders Course. The MRC or its cousin Better Biking are required at many installations before a motorcycle can be registered. These two courses are also available at many bases where they're not required.

This first-hand experience helped remind the commanders exactly how much fun a motorcycle can be and why so many of their personal choose two-wheelers for basic transportation. However, tempered by their experience they now better understand why courses such as the 20-hour MRC and four-hour BB are necessary.

Lt Gen John J. Murphy, 15th Air Force commander, and Brig Gen William B. McDaniel, 452nd Air Force Reserve commander, prepare to follow Sergeant Spurgeon's instructions during the hands-on portion of the abbreviated program.



Hands-on training means actually riding the motorcycles and riding them correctly. While the military uniform is not idealy suited to motorcycle riding, it is better than cut-offs and sandals. Most motorcycle rider hands-on courses are conducted in civilian riding gear such as denim and leather.

The cylinder head bolts must be torqued to the proper specifications in the proper order. Check your workshop manual for this information.

With the locknut loosened, turn the adjusting screw until there is a slight drag on the feeler gauge when adjusting the valves.

The center tower contact in this distributor cap is in poor condition and the cap should be replaced.

This rotor matches the distributor cap with a bad center contact and will have to be replaced.

THE THREE-PART

2 1 3 Gasoline ENGINE Tuneup

Fine Tuning

While there are no magic tricks or gadgets that are going to double your car's fuel mileage, it is going to operate at its best when tuned carefully and accurately. The average tuneup improves fuel economy 11.7 percent and will pay for itself in 7000 miles — 2500 miles if you do the work yourself.

Therefore, the best way to maximize your car's mileage and performance is to give it a thorough tuneup annually or every 15,000 miles if you drive more than that each year. So instead of waiting for a noticeable drop in your mileage, rough idling, hesitation, dieseling, hard starting, stalling, surging, pinging, misfire or lack of power, you should tune your car regularly as a preventive maintenance step.

We're holding this set of contact points open so that you can see where the gap (just above the index finger) will have to be adjusted when the set is back inside the distributor.

In the first part (June 1983) of this three-part series the Backyard Mechanic showed you how to inspect the battery, replace the air and fuel filters, check the emissions control systems, clean and examine the spark plug wires, and clean the carburetor. Also discussed in that first part of the series was the importance of having a good workshop manual for your specific vehicle and reading the entire tuneup section before tackling the job.

You were shown how to check the engine's internal fitness by performing vacuum and compression tests in the second part of this series (July 1983). You also learned how to read spark plugs and how to do a basic ignition system check in that middle article.

The final step of the tuneup is to get the fuel and ignition systems working together. So in this month's installment you'll adjust the valves, set the distributor, adjust the carburetor and set the timing.

Now not all cars require a valve adjustment. The hydraulic lifters in big V-8s are basically self-adjusting. However, today's smaller engines need the precise intake and exhaust timing that comes from a "solid" connection between the cam and valves to develop their power and economy. You'll also find this "solid" connection in performance engines of all sizes.

You don't actually adjust the valves; you adjust the clearance in the system. While there are many types of systems, the basic clearances are between the valve stem and rocker arm, and at the other end of the rocker arm, between it and either the lifter or cam.

The clearance specifications are usually on a decal inside the engine compartment. However, this is another area where a good workshop manual for your specific vehicle is extremely important in getting the job done right. Not only will the manual provide the exact specifications required, but it will also give detailed instructions on how to do the job correctly.

The specifications will be given as either "cold" or "hot." Adjustments for the cold specifications are always made with the engine off. However, hot specifications may have to be done with the engine running.

For the hot specifications you want to warm the engine up to operating temperature and them remove the valve cover(s). On many engines you may have to remove the air cleaner and other engine associated hardware to get to the cover. Be sure to label these items so that they can be properly reinstalled.

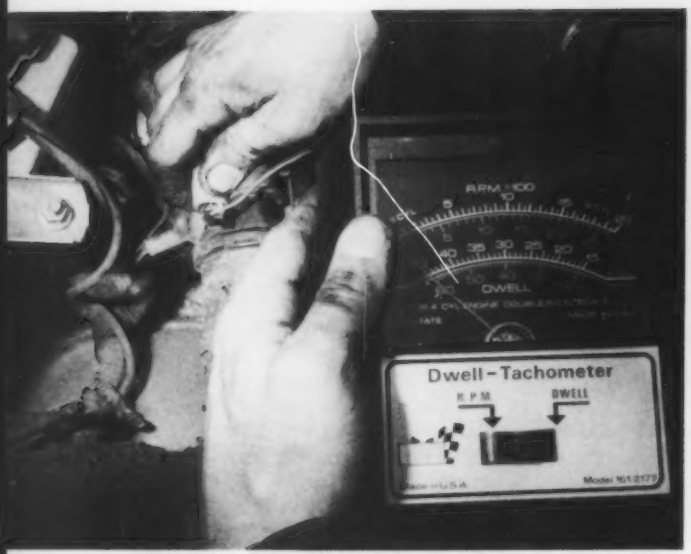
With the valve cover removed, torque the cylinder head to specifications. It is very important to follow the sequence for tightening these cylinder head bolts shown in the workshop manual.

Engines with self-locking hex-head screws for valve adjusting can be set while running. However, some engines may squirt oil on you or the outside of the engine when running without valve covers. If this is the case, you'll either have to rig a shield or make the adjustments with the engine off.

With the engine running at an idle, slip the right size feeler gauge between the rocker and valve stem. If it won't fit. back off the screw until it does. The adjustment is correct when there is a moderate drag on the gauge. The drag is only for the instant that the valve is closed. The rest of the time the gauge will be locked in place.

Since intake and exhaust valve clearances are different, you must know which is which. Check the manual carefully for

continued



After you've reassembled a conventional ignition you'll have to check the point dwell angle.

About all you can do with today's carburetors is adjust the idle speed to specifications.

2 1/3 Gasoline ENGINE Tuneup

this information.

Engines with slotted screw and locknut adjustments will have to be set with the engine off.

The idea is to check the clearance with the cam at its lowest point and the valves seated closed. With overhead cam engines this is relatively easy because you can see when the rocker arm is on the cam's bottom (lowest) point. However, when you're working with lifters and therefore can't see the cam you'll want to locate top dead center (TDC) for each cylinder. At that point both intake and exhaust valves will be closed.

To locate TDC, remove the spark plugs. Don't forget to only twist and pull on the boots when removing the cables and to label them so that they can be returned to the proper cylinders. Be sure to clean the ports before actually pulling the plugs.

Now put your thumb over the number one cylinder spark plug port and turn the engine until you feel a push of air. Be sure you're turning the engine in the correct direction (check the manual), usually clockwise. There are several ways to turn the engine. You can try to move it by hand with the fan belt and crankshaft pulley, but be very careful not to get your fingers caught between the two. You can also bump the engine over slowly with the starter via a remote starter switch. Or you can use a suitable wrench on the crankshaft pulley nut for turning (but this may require the help of a friend under the vehicle — which is properly supported on jack stands with the wheels blocked, of course).

After the rush of air, continue to rotate the engine until the timing mark comes to TDC (a couple degrees to one side or the other isn't going to hurt). The number one piston is now at TDC.

Insert the proper size feeler gauge between the valve stem and rocker arm. If the clearance is right, there will be a slight drag on the gauge blade when you remove it.

If the gap isn't right, loosen the locknut and turn the screw until you get the right gap. Then, holding the screw in place with a screwdriver, tighten the locknut and recheck the clearance.

Should you be working on a straight four-cylinder engine, finding TDC for the next cylinder is easy. After one complete rotation the next cylinder in the firing order (listed in the manual) will be at TDC. Otherwise you have a couple of slightly different courses for locating TDC for the rest of the cylinders.

You can remove the distributor cap and rotate the engine slowly. When the rotor comes to the next terminal location, track

The third timing light lead has to be connected to the number one spark plug cable.

the wire attached to that tower to the cylinder that is TDC. Or you can attach a test light to the breaker point terminal of the coil and ground. When the ignition switch is on the light will be on. Slowly rotate the engine by hand. The light will go out. When it comes back on, stop turning the engine. The next cylinder in the firing order is at TDC.

There are numerous other systems used by various manufacturers to adjust the valves, so it is important that you read your manual before tackling the job. In some cases, the adjustments require the use of shims and should be left to professional mechanics.

After all the valves have been adjusted, it wouldn't be a bad idea to go back and recheck them all. Then with a new gasket in place, reinstall the valve cover. Also replace the spark plugs and refit whatever else you removed.

Let's move on to the distributor. Whether your car has a conventional or electronic ignition system, first remove the distributor cap without disconnecting the spark plug cables. The cap is usually held in place by two spring clips. Wipe the distributor cap clean inside and out. Then look for cracks, burns, carbon tracking, terminal erosion, and damaged towers.

If the cap is bad, replace it. To do this identify one tower in relation to the keyway that locates the cap on the distributor. Then transfer one wire at a time from the old cap to its corresponding tower on the new one.

With good distributor caps all you have to do is clean any corrosion from the metal contact surfaces inside with a wire brush.

Next remove the rotor and wipe it clean. Now check it for cracks, chips, burns and erosion. If the connnection to the center terminal is a spring, check it for tension. If there is a felt wick in the center of the distributor shaft put two drops of SAE 10W engine oil on it.

There are no more tuneup procedures for the distributors on electronic ignition engines. However, if you have a conventional ignition there are breaker points to be serviced.

Loosen the screws and remove the old contact point set and condenser being careful not to drop the screws into the distributor. Just for your own sake, stuff a cloth into all the openings where the screws might fall. Be sure to note the position of all wires and terminals as you disconnect them.

If the points are badly pitted or burned they'll have to be replaced. You get one pass over them with a fine distributor-point file to bring them up to par or out they go. Also, if the rubbing block or pivot are loose, or the spring is weak, toss them out.

When replacing the points, replace the condenser.

Now wipe the cam lobes clean and lubricate with special grease included in the point tuneup kit. Should the cam have a wick, don't add the lubricant. Just turn the wick one-half turn. Replace a dried out wick with a new one.

Hold the condenser firmly in position while tightening the mounting screw. Then attach the condenser wire and primary coil wire to the new point set terminal. Carefully position the wire terminals exactly as they were before and set the nut finger-tight. Make sure any extrusions in the mounting plate fit properly in the point set.

When you're certain that the point set is positioned properly, hold it firmly while tightening the mounting screws. Then tighten the wire terminal nut.

Now connect a dwellmeter according to instructions. On cars other than those General Motors models that have an externally adjustable point dwell, remove the high-tension wire from the ignition coil and ground it. Then crank the engine until you get the rubbing block to rest at the highest point on a distributor cam lobe.

continued

continued

After cleaning the timing marks and pointer, carefully aim the timing light to read the ignition timing.

ment — the ignition timing. After hooking the timing light properly to its power source (either AC or the battery — read the light's instructions), the third light lead is connected with the number one cylinder spark plug wire (again, according to the light's instructions). Check your workshop manual for the location of the number one cylinder — it varies from engine to engine.

Now locate the timing marks. They also vary greatly from engine to engine. And again, the manual will help you find them.

After locating the timing marks, clean them and then very carefully outline the pointer and the specified timing mark with chalk, paint or nail polish to make them stand out. On most cars the timing is set with the vacuum advance line to the distributor disconnected and plugged. A golf tee or pencil stub make good plugs.

With the engine warm and idling at the

21 Gasoline ENGINE 3 Tuneup

Using a feeler gauge, adjust the point opening to the specifications in your workshop manual. Resecure the high-tension wire into the coil tower, and install the rotor and distributor cap. Now crank the engine and check the dwell angle against the manual's specifications.

If the dwell has to be increased, the point gap will have to be decreased. Of course, to decrease the dwell angle, increase the gap.

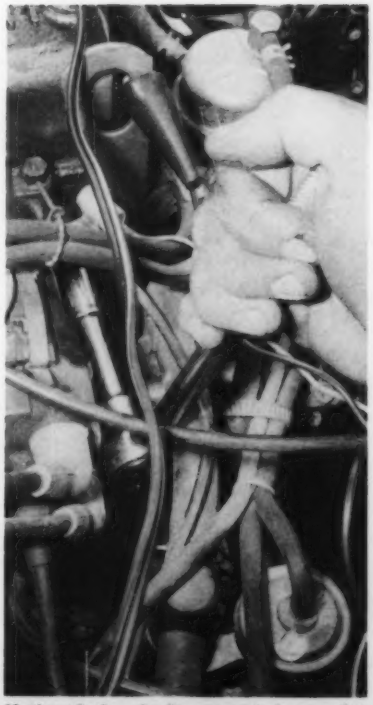
For those GM models with the external adjustment, install the rotor and cap. Then start the engine and run at an idle. Check the dwell angle. If it needs adjustment, raise the shutter window of the distributor cap and insert the wrench furnished with the tuneup kit into the head of the adjusting screw. Then turn it until you get the desired reading on the dwellmeter. Don't forget to close the window tightly when you're done.

With today's strict pollution standards have come complicated carburetors that require expensive test equipment such as an infrared exhaust analyzer, combustion analyzer and artificial enrichment with propane in order to adjust the fuel mixture. As a result you must find a shop with such equipment in order to get an accurate adjustment.

With pre-1975 cars, the job is easier. With the engine warmed up, you connect a tachometer and follow the steps outlined in your manual. Some cars have to have the transmission in neutral while others must be in drive. Some have the idle set with the lights or air conditioning on, others with everything off. Generally, however, you'll have to remove the air cleaner in order to get at the adjusting screw.

Check the idle speed on the tachometer. If it isn't right, turn the slow-idle-speed screw or idle-stop solenoid until it is as specified.

After setting the idle you're ready to make the final and most important adjust-



If the timing isn't correct, loosen the distributor hold-down bolts . . .

. . . and turn the distributor until the specified timing is obtained.

After re-tightening the distributor hold-down, double-check the timing.

correct speed, carefully aim the light at the timing marks. The timing light will flash each time the number one cylinder fires and make the timing marks appear to stand still.

If the specified timing mark doesn't appear to be stationary in relation to the pointer, you'll have to adjust the timing by rotating the distributor. To do this you loosen the distributor hold-down bolts and turn the distributor until the timing marks line up correctly. Be sure to tighten the distributor hold-down and recheck the setting.

OK, go back and quickly doublecheck everything you've done again. Once you're sure that you've done everything right and not left anything unhooked or loose tools lying around, you're finished. You might want to take your handiwork for a test drive. Other than that, you should be set for economical motoring for the next year or 15,000 miles — whichever comes first.

Safety First

Set the parking brake and chock the wheels. Put manual transmission in neutral, automatic in park.

Operate the engine in well-ventilated areas only.

Keep hands, hair, loose clothing and test leads well away from moving engine parts.

Don't touch hot exhaust manifolds, radiators, spark plugs and coil terminals.

Never look into a carburetor while the engine is being cranked or is running.

Don't smoke, use open flame (torch) or allow sparks to occur near the carburetor, fuel line, fuel filter, fuel pump, spilled gasoline, cleaning solvents, other flammables or a charging battery.

Be very cautious using anything electrical within 18 inches of the floor.

Gasoline is NOT a cleaning solvent.

Keep a fire extinguisher rated for gasolike and electrical fires handy.

Use the proper tool of the proper size and fit for every job.

Wear safety goggles when drilling, grinding, using a chisel, or using high pressure air.

Don't wear rings, watches, bracelets, jewelry, neckties or loose clothing.

the LUCKY ONES

Internal combustion engines produce carbon monoxide, a deadly poison. That's why the Backyard Mechanic so often reminds you not to work on cars or motorcycles in a closed garage. But there are other sources of carbon monoxide in our everyday environment. This true story tells how quickly a CO tragedy can happen to innocent people.

by DOUGLAS J. ABBOTT
Air Force Accounting and Finance Center
Denver

A suburban Detroit couple arrived at their cabin in early afternoon for a weekend of snowmobiling in northern Michigan. They also planned a short drive to visit their new granddaughter the next day. After lighting the forced-air furnace to take the March chill out of the seasonal home and having a bite to eat, they rode off on their snowmobiles for a visit. When Jack and Nan Abbotts arrived at a neighbor's home, they complained of severe headaches. Those headaches were an indication something wasn't right — that something would soon spell disaster for the couple and their family.

Jack and Nan returned to the small cabin about eleven that evening and went to bed. Their headaches were gone. The furnace was running, pushing warm air into each room and with it a lethal dose of carbon monoxide. The Abbotts didn't wake the next morning — their granddaughter never got her visit. Neighbors found the couple two days later still in bed and comatose.

Ambulance attendants said it was a miracle they were even breathing. Doctors at the hospitals said Jack wouldn't live through the night; Nan's condition was only slightly better. Family members arrived at the hospital, shocked by the horror of what happened and preparing themselves for the death that was forecast. But this isn't another story of carbon monoxide poisoning. It's a story about what medical people call the "lucky ones." I am this "lucky" couple's son.

My mother regained consciousness in seven days. She had a complete personality change and could hardly walk. Short-term memory loss was obvious and her handwriting wasn't legible. My father remained in a coma for nine months, after being on total life support for three weeks. Specialists at four different hospitals agreed his brain is so severely damaged that he will never again enjoy the life he knew. A once vibrant and athletic man now lives in a wheelchair, viewing life from a nursing home window and understanding it from an infant's perspective. My father, the doctors say, is one of the "lucky ones."

Most carbon monoxide victims become fatal statistics. Each year thousands of Americans, including Air Force people, die or suffer permanent brain damage from asphyxiation. The problem is especially acute overseas where substandard heaters and stoves are being used. Comfort heating is not the only potential hazard. Just this year an Air Force staff sergeant and two dependents died from carbon monoxide poisoning when a camp lantern filled their tent with the killer gas. Entire families have been found dead in their camping trailers and homes after using an outdoor grill for indoor heating.

A little carbon monoxide goes a long way. It's dangerous even in very small concentrations because it's absorbed into the blood more readily than oxygen. The red blood cells grab onto the toxic fumes and ignore the oxygen. If you smoke, it grabs on 400 times faster. Without oxygen, you're dead. Carbon monoxide is so insidious that two deep breaths containing a 2 percent concentration can kill you in two minutes. One deep breath and you will suffer brain damage.

Many disasters involving carbon monoxide can be prevented by using common sense. If something burns fuel it must either be vented or used outside. That includes automobile exhaust. You can reduce the chance of carbon monoxide poisoning from your home heating system by having it checked for exhaust leaks periodically. Leak detectors are available in most department stores for extra protection.

The only way to win against this distributor of death is to eliminate its presence in your homes, cars, and camp shelters. Cheating death after being exposed to carbon monoxide does not produce winners. As in my father's case, it produces only "lucky ones" — a definition he will never understand.

HIGH COURT RULING AFFECTS DWI PROSECUTIONS

If you are stopped by the police on suspicion of drunk driving and you refuse to take a blood-alcohol test, can your refusal be used as evidence against you in a courtroom?

There was no clear-cut answer until the Supreme Court was recently asked to rule on a lower court decision that use of such evidence violates the Fifth Amendment, which protects against self-incrimination.

The Court has now said that refusal to take a blood test (or, presumably, the breathanalyzer tests still used by some states) "is not protected by the privilege against self-incrimination."

Previously, the Court had ruled that states can revoke the licenses of motorists who refuse to take such tests, but not that the refusal could be used to charge motorists with drunk driving.

Twenty states currently permit use of a driver's refusal to submit to the test as evidence in drunk-driving prosecution. The dispute over whether such evidence can be legally used began in 1980 when the South Dakota legislature passed a bill allowing use of refusal as evidence — an action aimed at helping prosecutors win cases in which accused drunk drivers try to beat the system by withholding a blood sample.

In the summer of 1980, a South Dakotan charged with driving while intoxicated refused to take the test, and the state supreme court ruled that testimony about his refusal violated his constitutional rights. The U.S. Supreme Court has now overturned that ruling.

BRAKES ARE NEGLECTED

Neglecting proper maintenance of a car's brakes can bring added expense later and, at the same time, cause a possible dangerous stopping situation, says the Automotive Information Council (AIC).

When a car has been slowed and stopped many thousands of times, the linings or disc pads will wear, but this happens so gradually that the owners may not be sensitive to the changes which result, and if ignored can result in a big expense to recondition or replace the rotors and/or drums. That expense can be avoided by replacing the lining or pads when needed.

Check the owner's manual for the recommended service interval or get a brake inspection at least once a year, depending on mileage driven. Check the fluid level in the master cylinder at least every 5,000 miles. A low level could signal a leak, which should be checked at a service facility immediately.

Driving habits affect the life of a car's brakes more than any other factor. Unless you have to make a sudden stop as a safety measure, don't slam on the brakes. That can cause uneven wear. Try to anticipate stops, not only to save the brakes but to reduce tire wear as well.

Don't ride the brakes when driving because that practice also results in premature wear.

Because brake wear usually is so gradual, be aware of the following conditions:

Brakes pull car to one side — This indicates worn linings or pads, fluid on the lining or worn suspension parts.

Brakes chatter — A drum is out-of-round, a disc is warped or a lining is loose.

Metallic sound when stopping — Brake shoes or pads are worn completely.

Spongy brake pedal — Low on fluid on air in lines.

If any of those conditions exist, the vehicle should be fixed before any more driving is done.

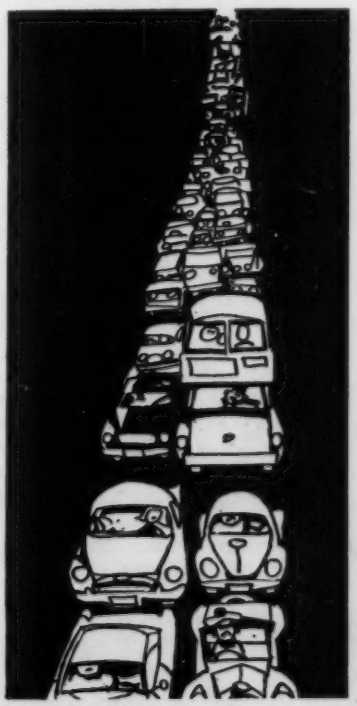
THE BACKYARD MECHANIC

Volumes I, II, or III of the "Backyard Mechanic" may be obtained from the Consumer Information Center, Pueblo, CO 81009. The cost per copy for each volume is as follows: Vol I, $4.00; Vol II, $4.50; Vol III, $4.50. The cost for all three volumes is $9.50.

The "Backyard Machanic" can no longer be obtained through DRIVER Magazine as we have exhausted our supply.

WORST ROADS

In a recent interview in *People* Magazine, Gerald Donaldson of the Center for Auto Safety named 10 of America's most dangerous roads. These roads are poorly designed, obsolete or decaying: the junction of Interstates 91 and 84 in Hartford, Conn.; Route 9W near Nyack, N.Y.; Route 9A, the West Side Highway, in New York City; Interstate 278, Grand Central Parkway section, in Queens, N.Y.; Route 17 in northern New Jersey; the Capital Beltway junction of Interstates 95 and 495, south of Washington, D.C.; Interstate 264, Watterson Expressway in Louisville, Ky.; Interstate 40 in Albuquerque, N. Mex.; the Route 91-Interstate 15 junction near Nephi, Utah; and the non-freeway sections of Route 50, southwest of Lake Tahoe, Calif. Reasons for poor ratings included roadside hazards, poor roadway design or condition, and inadequate guardrails or signing.



BACKFIRE
LETTERS to the EDITOR

DIESEL HINTS

I bought a diesel fueled passenger car within the past year but I find that there is very little in print on the care, feeding and maintenance of these cars. Have you published any articles in recent years on the subject such as diesel tune-up, oil, fuel hints and so forth? Are there any good published sources available?

Capt Don Rightmyer, USAF
Mountain Home AFB, ID 83648

The best sources for such information are your dealer's service and parts departments. The parts counter should be able to order (if they don't already stock) a workshop manual for you. Also, if you don't have a large book store locally, pick up any major commercial auto magazine such as Car and Driver, Road & Track, etc. and check through the ads published by the larger book sales outlets for the type of information you are seeking. The information you seek is also generally included in the larger "all cars" manuals published by companies such as Chilton's and Motor.

SHEDDING SOME LIGHT

Wait! I would like to shed light on your third driving question in "Hodge Podge" from the May 1983 DRIVER.

There is a logical reason why the car on the right goes first when two cars meet on intersecting roads. If the car on the left went first, it would need to cross two lanes (assuming it did not turn right) of traffic before the car on the right could continue. The car on the right only need cross one lane of traffic before the car on the left could continue. Thus the car on the left has a less obscure view of the intersection to continue. This aids in smoother, more efficient flow of traffic.

Sgt Curtis W. Henson, USAF
Williams AFB, AZ 86201

Sure makes sense to us!

IT'S IN THE MAIL

Per the item about a tire safety and mileage kit which was printed on page 18 of your January 1983 issue, I have the following information to pass on to you.

I mailed a check to the address shown in early February. Last month, I still had not received either the kit or my cancelled check, so I wrote a letter of inquiry. To date I have heard nothing.

CPO Jim Cox, USN
Lakewood, NJ 08701

The Tire Industry Safety Council told us by phone that they were behind in their mailings but all orders would be filled soon. In fact, they promised to mail your kit the same day we called them.

NO MORE HEARTACHE OR HEADACHE

Once again a helmet would have saved a lot of misery and concern.

In spite of the many times I told my son not to let others ride his motorcycle, he did. He told his friend to wear the helmet and handed it to him. "I don't need a helmet, I'm just going around the block" he said. Half way around the block a van pulled out in front of him.

Four days later he was released from the hospital with his face and head sewed up with 200 plus stitches. Although he had been wearing only a tank top and shorts, very little other skin was lost. The doctor told him that if he had been wearing a helmet he would have been checked over and released.

The boy's father told me that he needed his butt kicked because he had been one of the anti-helmet people who took the law clear to the Utah Supreme Court. He went on to say he will never ride without one again.

Please keep telling motorcyclists to wear helmets. If not for themselves, for the others who suffer heartache and mental anguish when they don't.

Jed Harris
Roy, UT 84067

GETTING STREET SMART

I read your motorcycle article, "leave road racing to the road racers" in your May issue. Good points were discussed, such as the modifications to the racer's bikes and the "best" safety equipment that the drivers always wear, the racing slicks and, of great importance, the fact that conditions on the track are race conditions and the road is . . . chaos.

One more point that was implied by that last statement but not specifically mentioned is the road condition itself. Those racetracks are flat, clean, unlittered ribbons of pavement. The racer need not be overly concerned with obstacles, sand patches or oil slicks. This (for me) is the main deterent to "street" road racing. That seldom used stretch of ess-turns that is just perfect for the weekend canyon cruiser is not a manicured race track. In addition to any surprise traffic using the road, the unthinking rider can easily encounter the sand patch from last night's rain, or the oil puddle from the car's busted engine.

These problems are apparent to me as a fairly experienced rider but, like most people, I went through my "wild days" and had many close calls. The trick is to get smart before one of those close calls goes beyond close.

If you use the public roadway for thrills, sooner or later you're gonna eat it . . . asphalt and all!

STEVEN W. KNIGHT
CW3 US Army
APO NY 09223

CENTRIFUGALLY AND KINETICALLY BALANCED

It was a cool Sunday afternoon, as I headed to Oakland, California from Travis AFB via Highway 80 in my 81 Le Car with three other people (two adults and two larger-than-normal adolescents). I was talking about the superior handling and smooth ride the Le Car continually gave me at (ahem) speeds above (ahem)

60 mph. I was in the lane closest to the fast lane when I switched on my turn signal in the direction of the high speed lane. I entered the high speed lane but didn't notice that I was also entering a 30-degree right curve.

The next thing I knew, despite my herculean efforts to straighten out my course, I saw the bumper and right side of a hulking Cutlass Supreme. My vehicle had the side of that car targeted. I applied pressure to my brakes, downshifted and leaned as far right as I could. I missed the Cutlass by approximately nine inches. After saying 10 Hail Mary's and getting my blood pressure down and nerves in order, I saw the light. I shall never enter a curve in a fully loaded small car at a high speed without considering centrifugal/kinetic force.

TSgt C.J. Spencer, USAF
Travis AFB, CA 94535

MORE PREDICTABLE HAZARDS

Your article on "Living with B.A. Drivers," April 1983, was very fine and presented some sound and helpful information. However, as a daily cycle commuter I take exception to your advice on bike lanes. Such places can create as many hazards as they remove.

I have seen bike lanes which disappear at some point, forcing the rider to stop and check traffic before entering the regular lanes. Right turning cars may or may not (probably not) check the bike lane before turning.

Bike lanes are also used, at times, by joggers whose speed is slow compared to the cyclist. The hazard here is obvious. I have seen motorcycles and even cars speeding down a bike lane. I'm glad I wasn't in it at the time.

Some bike lanes allow for car parking to the right, causing the cyclist to ride close to their left. A suddenly opened car door and the cyclist must brake to a stop or swerve into traffic to avoid a crash. Hopefully he or she will stop.

Bike lanes, while fine for a leisurely ride, are annoying and can be dangerous to a cyclist trying to get somewhere. I for one like the regular traffic lanes where I am more easily seen and the hazards are predictable.

MM2 Charles A. Taylor, USN
San Diego, CA 92105

A HAIR-PULLING EXPERIENCE

The picture in your June 1983 issue ("Simple Self Service"), depict an accident just waiting to happen. Specifics include hanging over the engine compartment with long hair and fooling around places with metal edges while wearing a ring and wrist watch.

The late John Muir in "Keeping Your VW Alive, Instructions for the Compleat Idiot" described a lady in Albuquerque who tied some of her hair to her car as a reminder not to do it again. That same piece of hair complete with scalp patch was taken off of her head by the fan belt. Yuchhh! Otherwise, a good article.

MSgt Jerome C. Borden, USAF
Cheyenne Mtn, CO 80914

We call your attention to page 3 of this article, where we said to do all servicing with the engine off. The reason we gave was to avoid explosions, but the danger of getting things caught in moving parts is also a consideration. Need we add that the engine was off in those photos? However, we'll watch those models more carefully in future articles.

A COMPLIMENT?

Please excuse this letter if it seems to jump from subject to subject but I just finished reading "DRIVER Interviews Head of RAH*" in the July 1983 issue for the third time and am still having trouble controlling my laughter. I have two things to say about it: One is brilliant and the other is, it is a crying shame that such people do exist.

I would also like to thank you for attempting to make engineering subjects understandable with your at times humorous stories over the past three years on the SAE. The "Dragnet" take off in 1981 was good, but I'm not really sure what you were trying to tell me in the Gas Station at MPG Corner or whatever the Winnie-the-Pooh style story was in 1982. And this year's Alex's Adventures in Motorland was good except that cats can't talk.

But as I said I would *like* to thank you, but I'm not sure I can, because I don't think I understand. But I was entertained.

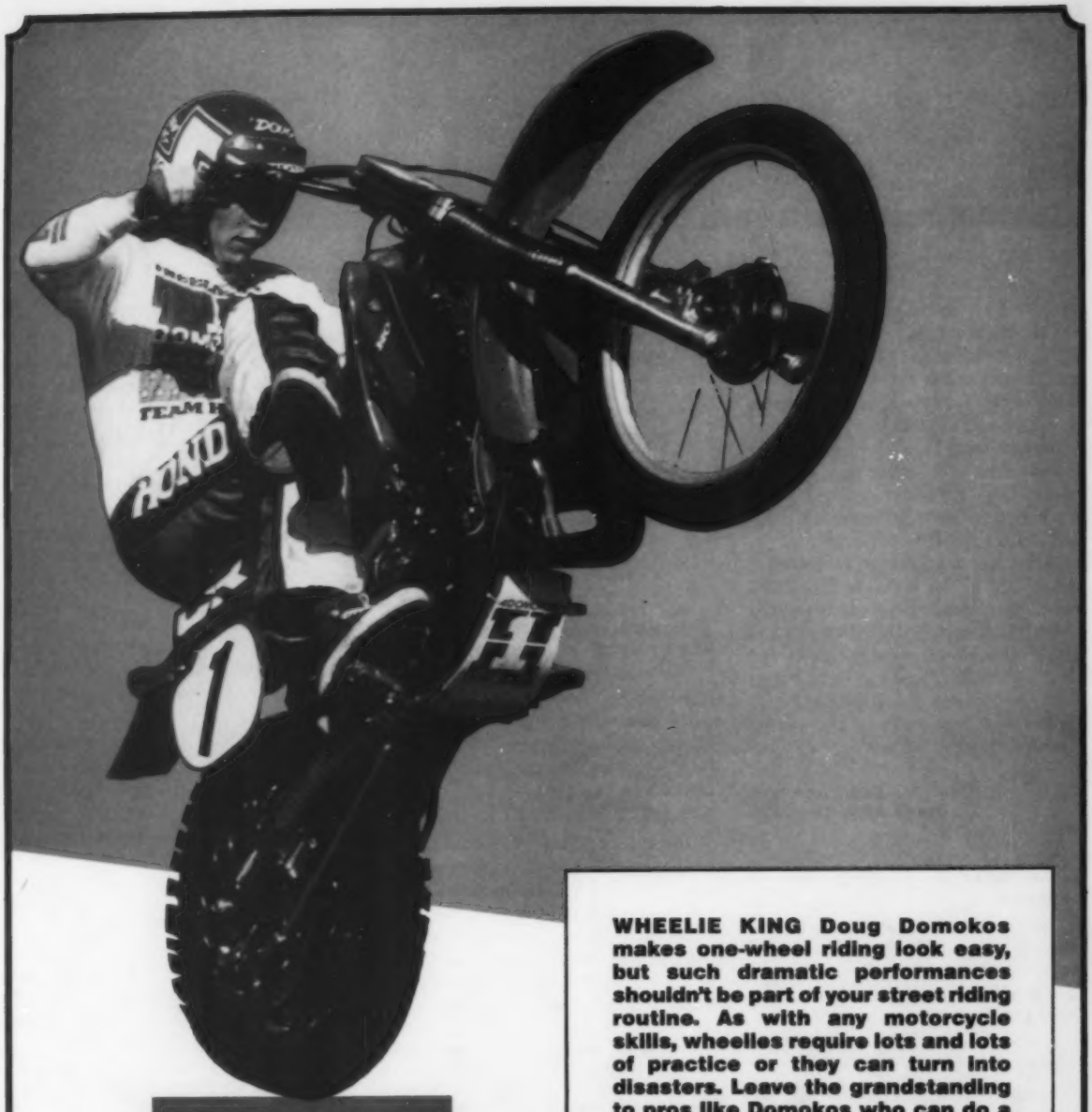
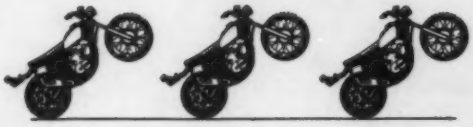
Name withheld
at reader's request

ONE OF THE BEST

The article on minor auto maintenance (The Backyard Mechanic) which appeared in the June 1983 issue was among the best I've ever seen. I'm willing to bet that issue of DRIVER will be saved. Too bad there's not such a pamphlet one can carry in one's auto.

Capt Marie C. Shadden, USAF
Lackland AFB, TX 78236

The three volumes of the "Backyard Mechanic" are available from the Consumer Information Center, Pueblo, CO 81009. The cost per copy for each volume is as follows: Vol I $4.00; Vol II, $4.50; Vol III, $4.50. The cost for all three volumes is $9.50. The exact article you read in the June DRIVER isn't in the collection, of course, but you will find a lot of similar basic information.



WHEELIE KING Doug Domokos makes one-wheel riding look easy, but such dramatic performances shouldn't be part of your street riding routine. As with any motorcycle skills, wheelies require lots and lots of practice or they can turn into disasters. Leave the grandstanding to pros like Domokos who can do a wheelie for miles upon miles.